

We claim:

1. A fuel cell system comprising

a combustion device (1, 24) having at least one exhaust gas line (3) for discharge of exhaust gas (7, 34),

a reformer (20) for converting a hydrocarbon-containing mixture (6, 31) to a hydrogen-enriched fluid (35),

a fuel cell unit (23), and

at least one heat exchanger (2, WT1) arranged in the at least one exhaust gas line (3), said at least one heat exchanger (2, WT1) comprising means for delivery of heat from said exhaust gas (7, 34) to a heated fluid (32) and/or an operating substance (29, 30, 31) of the reformer (20).

2. The fuel cell system as defined in claim 1, wherein said combustion device (1, 24) has an outlet opening (4) for said exhaust gas (7, 34) and said at least one heat exchanger (2, WT1) is arranged in the vicinity of the outlet opening (4) for said exhaust gas.

3. The fuel cell system as defined in claim 1, wherein said operating substance (29, 30, 31) of said reformer (20) to be heated comprises said hydrocarbon-containing mixture (6, 31).

4. The fuel cell system as defined in claim 1, wherein said operating substance (29, 30, 31) of said reformer (20) to be heated comprises air.
5. The fuel cell system as defined in claim 1, wherein said operating substance (29, 30, 31) of said reformer (20) to be heated comprises water (29).
6. The fuel cell system as defined in claim 1, further comprising at least one metering element (BV, TV, WV) for metering or regulating a flow of said operating substance (29, 30, 31) and/or said heated fluid (32).
7. The fuel cell system as defined in claim 1, further comprising at least one exhaust gas catalytic converter (21) for purifying said exhaust gas.
8. The fuel cell system as defined in claim 7, wherein said at least one exhaust gas catalytic converter (21) is arranged downstream of the said at least one heat exchanger (2, WT1) in a flow direction of said exhaust gas (7, 34).
9. The fuel cell system as defined in claim 1, further comprising at least one storage unit (27) for storing said hydrogen-enriched fluid (35).
10. The fuel cell system as defined in claim 1, further comprising at least one heat reservoir (25) for storing heat.

11. The fuel cell system as defined in claim 10, wherein said heat reservoir (25) comprises a heat-storing material and wherein said heat-storing material undergoes a phase change in an operation stage.

12. A vehicle comprising a combustion device (1, 24) having at least one exhaust gas line (3) for discharge of exhaust gas (7, 34) and a fuel cell system; wherein said fuel cell system comprises said combustion device (1, 24) with said at least one exhaust gas line (3), a reformer (20) for converting a hydrocarbon-containing mixture (6, 31) to a hydrogen-enriched fluid (35), a fuel cell unit (23) and at least one heat exchanger (2, WT1) arranged in the at least one exhaust gas line (3), said at least one heat exchanger (2, WT1) comprising means for delivery of heat from said exhaust gas (7, 34) to a heated fluid (32) and/or an operating substance (29, 30, 31) of the reformer (20).

13. The vehicle as defined in claim 12, consisting of a self-propelled vehicle.

14. The vehicle as defined in claim 13, wherein said combustion device (1, 24) comprises an internal combustion engine have a plurality of cylinders and said fuel cell unit (23) produces electrical power from air and said hydrogen-enriched fluid (35).